# Words of Wisdom

## OMB and GAO Project Management Certification Requirements: Response and Implementation

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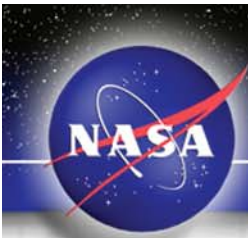**Jon Boyle, Ph.D.**, NASA APPEL Program Manager, ASRC Management Services

Academy of Program/Project & Engineering Leadership

# Agenda

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# Governance

- **APPEL, in addition to developmental activities, assists in communicating requirements in policies and procedures that must be consistent with and derived from highest-level Agency policies and procedures and applicable Federal laws and statutes:**
  - ➤ **Top-level policy directives:**
    - ✓ **NPD 1000.0 Strategic Management and Governance Handbook**
    - ✓ **NPD 1000.1 Strategic Plan**
    - ✓ **NPD 1000.3 NASA Organization**
  - ➤ **Top-level requirements documents:**
    - ✓ **NPR 7120.5d – Program and Project Management Processes and Requirements**
    - ✓ **NPR 7123.1A – Systems Engineering**
    - ✓ **NPR 8715.3 – NASA Safety Manual**
    - ✓ **NPR 8000.4 – Risk Management**

# Federal Requirements

- There are new Federal government technical workforce development reporting requirements and recommendations for developing robust and comprehensive career development frameworks for Federal PMs:

  - ➤ OMB issued mandatory development and tracking of project managers (PMs) across the government including a comprehensive requirement for development of Agency PMs and tracking of progress and accomplishments

  - ➤ The NAS 2007 Report *"Building a Better NASA Workforce: Meeting the Workforce Needs for a National Vision for Space Exploration"* specifies that NASA should collect detailed data on NASA workforce requirements in terms of competencies and experiences

  - ➤ GAO has designated NASA's contract management function and financial management system as a High Risk area and has initiated iterative reviews of remedial actions.

# OCE Response

- **OCE is implementing a Corrective Action Plan to improve contract and financial management; as part of this effort APPEL has introduced 8 related courses for Center delivery**

- **OCE is leading development of the APPEL Technical Leadership Institute (TLI):**

  - ➤ **Recognizes Center PGMs, PMs and SEs as they increase technical and leadership capabilities as defined by PM/SEDP and Center engineering discipline criteria and requirements**

  - ➤ **Enhances collaboration and fosters communities of practice as PM's & SE's engage in individual and shared learning**

  - ➤ **Provides a PM/SE developmental framework that**
    - ✓ **Is flexible enough to accommodate Federal government requirements**
    - ✓ **Allows Center Executives to identify high performing PM&SE practitioners**

  - ➤ **Assigns preferred retired NASA PM's and SE's to function as mentors**

  - ➤ **Consists of a structure and administrative procedures that support tracking and monitoring of continuous development activities**

# TLI Structure

- **Consists of responsibilities; capabilities; performance criteria; mandatory, recommended and optional developmental activities; and Center approval processes that are tracked and reported at the following progressive levels:**
  - ➢ **General Membership**
  - ➢ **Associate Fellow**
  - ➢ **Institute Fellow**
  - ➢ **Fellow Emeritus**

# TLI Structure

| NASA Technical Leadership Institute Levels and Related Capabilities and Requirements | | | | |
|---|---|---|---|---|
| | **General Membership** | **Associate Fellow** | **Institute Fellow** | **Fellow Emeritus** |
| *Level of Responsibility* | Technical Engineer or Project Team Member (***FAC***: *Entry/Apprentice*) | Small Project or Subsystem Lead (***FAC***: *Mid-level/Journeymen*) | Large Project or Major System Manager (***FAC***: *Senior/Expert*) | Program Manager & Beyond (***FAC***: *Senior/Expert*) |
| *Required capabilities and demonstrated experience required for entry into each level* | Practitioners in the following positions will be granted general membership into the Institute at this level: -Professional engineering, scientific, and other technical positions engaged in professional research, development, operations related to work pertaining to the basic NASA mission -Scientific, engineering, and other technical positions performing professional work not directly related to NASA's mission of carrying out aerospace and aeronautical research and development | Practitioners who enter the institute at this level should have participated in or led, or can lead PM activities such as requirements development, budget and schedule development, and risk management on a subsystem or a small project. They should have demonstrated the application of PM tools, techniques, and best practices at the project subsystem level. | Practitioners who enter the institute at this level should be able to direct, structure, and integrate project management activities for major systems or projects. They will have taken a significant leadership role in multiple phases of a project or system life cycle managing both programmatic and technical aspects for a project and/or managed all technical integration. | Practitioners who enter the institute at this level will have contributed to Agency goals and demonstrated their effectiveness in managing programmatic, technical, and strategic interfaces both internal and external to the Agency. They will have demonstrated superior results in the formulation and implementation of all Program/Project Management activities. |
| *Recommendations & Approvals* | Nomination for this level of membership is not necessary. Participants in NASA Academy programs will automatically be enrolled at this level. Individuals who are under the Technology Management classification are designated as General **Members.** | Individuals are nominated for membership into the Institute by their supervisors to the Center TLI panel. They will forward the recommendation to a designated representative of the Agency TLI panel to provide membership. The individual will receive a certificate signed by the Center Director. | Individuals are recommended to the Institute by their supervisors to the Center TLI panel. The Center TLI panel reviews and validates the PDP for membership at this level. If the Center Review Panel approves the candidate, they will forward their recommendation and the individual's PDP to the Agency Review Panel. Upon **approval,** the individual receives a certificate signed by the Agency Chief Engineer. | Individuals are recommended to the Institute by their supervisors to the Center TLI panel. The Center TLI panel reviews and validates the portfolio for membership at this level. If the Center TLI panel approves the candidate, they will forward their recommendation and the individual's PDP to the Agency TLI panel. If approval is granted, the individual will receive a certificate signed by the NASA Administrator. |

| TLI Framework | Federal Acquisition Certification-P/PM | PMI Certifications | INCOSE Certification |
|---|---|---|---|
| **GENERAL MEMBERSHIP (PM/SEDP Level 1):** Participation in: <br>-Foundations of Aerospace at NASA (core) <br>-In-depth courses <br>-Developmental work assignments <br>-Working with a mentor <br>-Knowledge sharing <br>-Competency development <br>-Certifications | *Entry Level/Apprentice:* At least one year of project management experience within the last five years. Project management experience includes experience constructing a work breakdown structure, preparing project analysis documents, tailoring acquisition documents to ensure that quality, effective, efficient systems or products are delivered, analyzing and/or developing requirements, monitoring performance, assisting with quality assurance, and budget development. | *Certified Associate in Project Management (CAPM).* Must meet following education and experience requirements and then pass exam <br>● Must have 1,500 hours of work on a project team *or* <br>● 23 hours of formal education | *Certified Systems Engineering Professional (CSEP).* Must meet following education and experience requirements and pass exam <br>● Must have 5 years minimum in multiple SE disciplines <br>● Additional experience must be substituted for non-technical degree <br>- 5 more years of engineering for non-technical Bachelor's degree <br>- 10 more years of engineering if no Bachelor's degree <br>● Experience confirmation & recommendations from at least 3 colleagues/peers/ managers who are knowledgeable in SE |
| **ASSOCIATE FELLOW (PM/SEDP Level 2):** Participation in: <br>-PM&SE-A&B (core) <br>-In-depth courses <br>-Developmental work assignments <br>-Working with a mentor <br>-Knowledge sharing <br>-Competency development <br>-Certifications | *Mid-Level Journeyman:* At least two years of program or project management experience within the last five years that includes experience at the entry level as well as experience performing market research, developing documents for risk and opportunity management, developing and applying technical processes and technical management processes, performing or participating in source selection, preparing acquisition strategies, managing performance based service agreements, developing and managing a project budget, writing a business case, and strategic planning. | | |
| **INSTITUTE FELLOW (PM/SEDP Level 3):** Participation in: <br>-APM&ASE (core) <br>-Level 3 In-depth courses <br>-Developmental assignments <br>-Working with a mentor <br>-Knowledge sharing <br>-Competency development <br>-Certifications | *Senior/Expert Level:* At least four years of program and project management experience on federal projects and/or programs, including managing and evaluating agency acquisition investment performance, developing and managing a program budget, building and presenting a successful business case, reporting program results, strategic planning, and high-level communication with internal and external stakeholders. | *Project Management Professional (PMP).* Must meet following education and experience requirements and pass exam <br>● 4,500 hours in a position of leading and directing tasks and 36 months of PM experience <br>● 7,500 hours in a position of leading and directing tasks and 60 months of PM experience without a Bachelor's degree <br>● 35 hours of PM education | |
| **FELLOW EMERITUS (PM/SEDP Level 4):** Participation in <br>-Developmental work assignments <br>-Being a mentor <br>-Knowledge sharing (i.e. speaking at courses) <br>-Competency development <br>-Certifications | | *Program Mgmt Professional (PgMP):* Over last 15 consecutive years, must have 4 years of Project Mgmt and 4 years of Program Mgmt experience. W/out BS, must have additional 3 years of Program Mgmt experience | |

# PM/SEDP Framework

| | Level 0 | Level I | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|
| **Levels of Project Leadership** | New hires (both technical and non-technical) within their first year of employment at NASA | Project Team Member/ Technical Engineer | Small Project/Subsytem Lead | Large Project Manager/ Project Systems Engineer | Program Manager/ Program Systems Engineer |
| **Attend Mandatory Core Curriculum** | Attend Foundations of Aerospace at NASA | | Attend Project Mgmt & Systems Engineering A & B | Attend Advanced Project Management & Advanced Systems Engineering | Attend Program Manager Course (under development) |
| **Attend APPEL In-Depth Courses (Over 40 courses available)** | | | | | |
| **Examples of Possible Developmental Work Assignments** | • Assignments by supervisors | • Attend integration and test activities and debriefing to understand problems that arise<br>• Obtain assignment to and participate in at least on problem-solving or process improvement team | • Serve as a team leader or chair of a work group and describe lessons learned<br>• Serve on a Source Evaluation Board<br>• Visit/rotate into an international project office | • Request a rotational assignment within your Center, at another Center, or at Headquarters<br>• Develop/implement a project plan with schedule, cost, and requirements | • Participate in program management to achieve the missions within the strategic plan<br>• Develop a plan that addresses the key mission assurance elements that contribute to mission success |
| **Other Examples of Non-Traditional Learning Experiences** | • Interview knowledgeable people in your discipline and related disciplines<br>• Build networks within your Center as well as with individuals in other Centers | • Write a technical paper and share with your team<br>• Interview subject matter experts or observe experts or mentors | • Write a technical paper and present it at a conference or symposium<br>• Teach in an area of interest at a University | • Write a technical paper and present it at the Master's Forum or PM Challenge<br>• Teach in an area of interest | • Become a mentor<br>• Conduct storytelling sessions<br>• Instruct or become a guest speaker at APPEL courses |

Academy of Program/Project & Engineering Leadership

# Implementation

- **The Academy of Program/Project & Engineering Leadership (APPEL) sponsors TLI and supports NASA Centers by promoting individual and team excellence in program/ project management and engineering through the application of learning strategies, methods, models, and tools**

- **APPEL provides training and development products and services for individual practitioners as well as project/ program teams at every level. Requirements and coordination are accomplished through Center Senior Executives and designated POCs**

- **APPEL designs and implements Center-relevant developmental activities and uncovers resources that resonate with the NASA workforce to facilitate communities of practice, develop reflective practitioners, harvest leadership expertise in project management and engineering, and communicate critical knowledge**

# Implementation

- **NASA TLI procedures include the following:**
  - ➤ **Requires Individual Development Plans (IDPs) & Personal Development Portfolios (PDPs)**
  - ➤ **Appropriately involves Center Leadership, Center and Agency Review Panels**
  - ➤ **Provides alignment of the Center developmental model with the PM/SEDP Career Development Framework and Competency Model**
  - ➤ **Provides guidelines for nomination and acceptance to four levels of recognition based on achievement of developmental goals derived from the PM/SEDP**

# Implementation

- **PM&SE Development Structure**
  - ➤ **Mandatory PM/SEDP core curriculum provides a systematic approach to assure essential training for project managers at the appropriate time in their careers**
  - ➤ **Voluntary PM/SEDP In-depth curriculum provides supplemental development as a result of individual job requirements or Center future development needs**
  - ➤ **Center curriculum and developmental activities support Center-specific mission requirements**
  - ➤ **Guidelines for outside the classroom activities reinforce learning and provide additional means of obtaining requisite skills**
- **APPEL provides these courses and facilitates opportunities for attendance across Center locations**
- **PM/SEDP also provides suggestions/ recommendations for outside-the-classroom activities**

- **Working to expand hands-on developmental activities across the Agency and with industry and academia**
- **New programs such as the PI Course, EVM courses**
- **Center-based "Fast Forums"**
- **NASA Engineering Network (NEN) integration of Center CoPs**
- **Increased Center participation at Masters Forums**
- **Increased Center participation at PM Challenge**
- **Increased Center participation in EVM/financial management courses**
- **ASK Magazine with Center-specific issues and contributions**
- **Additional Center Case Studies**
- **University partnerships to enhance capability for project management and systems engineering**

- **Cadre of recognized Center project personnel and engineers for now and the future**

- **Better performance through increased knowledge sharing and integrated communities of practice and experienced mentors**

- **Enhanced motivation for professional development at Center**

- **Basis for satisfying Federal certification requirements and workforce recommendations**

# Next Steps

➢ **Implement a phased TLI implementation with PM first, then other communities**

➢ **Tailor Agency TLI with Center responsibilities; capabilities; performance criteria; mandatory, recommended and optional developmental activities; and Center approval processes that are tracked and reported at the 4 TLI levels**

➢ **Implement recognition requirements based on Center processes**

➢ **Work with Human Capital to develop and implement an Agency PM strategy**

➢ **Continue improvements through benchmarking activities**

➢ **Have Center Fast Forums focusing on project management with Center and external speakers to speak and share best practices**

➢ **Highlight stories of project management from Centers in ASK Magazine, ASK OCE, & APPEL Masters Forums**

➢ **Coordinate additional Center PM Challenge participation**

➢ **Sponsor future Center-based forum/conference that invites key project leaders from NASA & industry**